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EXAMINER

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ART UNIT PAPER NUMBER

3637

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GROUP 3600

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/081,376
Filing Date: February 21, 2002
Appellant(s): GREGEL ET AL.

Jonathan A. Platt
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 30, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-15, 20-22, and 26.

Claims 3 and 26 have been amended subsequent to the final rejection.

Claims 14-15 are withdrawn from consideration as not directed to the elected specie.

Claims 16-19 and 23-25 have been canceled.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on June 3, 2004 has been entered.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-3 and 13 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 4-5, 9-12 and 26 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 6-8, 11-12, and 20-22 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix A to the brief is correct.

The copy of the appealed claims contained in the Appendix B to the brief is not correct and is withdrawn since the amendment filed after final has been entered.

(9) Prior Art of Record

DD 222,374	Schade et al.	05/1985
US 2,781,658	Dobell	2/1957

UK 2,034,857	Lande	06/1980
UK 2,192,210	Kadota	01/1988

(10) Grounds of Rejection

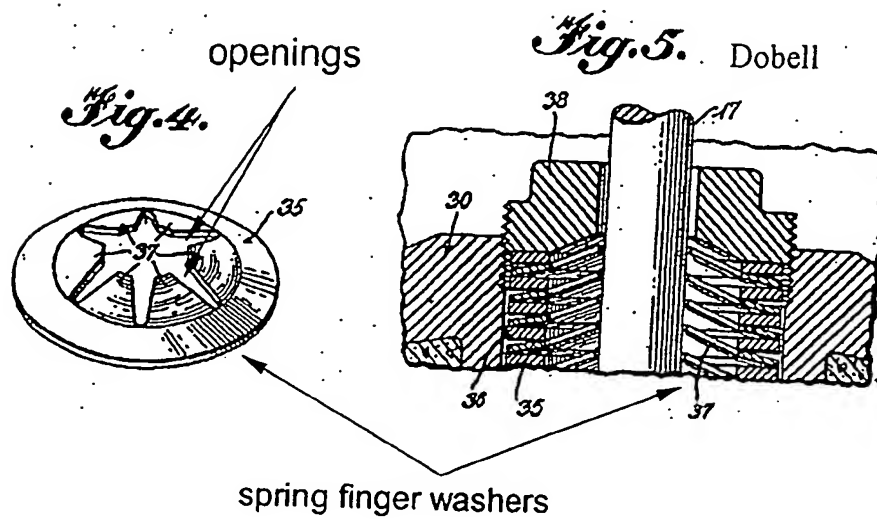
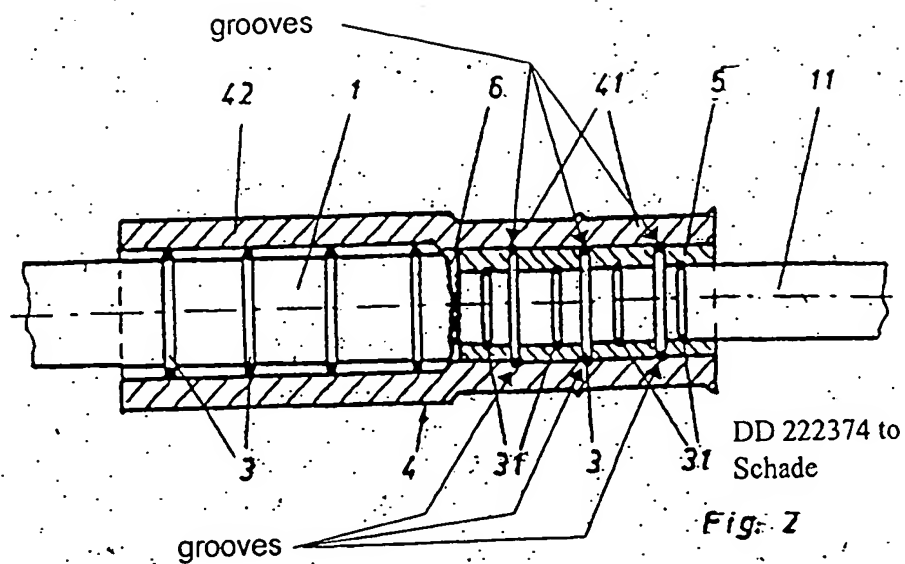
The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over DD 222374 to Schade et al. and Dobell (US Patent No. 2,781,658)

Schade et al. discloses a reinforcing bar connection (Figure 2 as illustrated bellow) for joining two reinforcing bars (1, 11) end-to-end for use in reinforced concrete construction, comprising a sleeve (41 and 42); two sets of three to ten flexible metal ring washers (3) mounted and oppositely arranged in two parts of (41, 42) the sleeve, wherein the numbers of the flexible metal ring washers (3) in each set are between three to ten or would be more as claimed, the metal ring washers are mounted to grooves in a coupling (5) which is coupled to the sleeve, therefore the metal ring washers are considered to be mounted to corresponding grooves on the sleeve as claimed, and the metal rings are "adapted to" expand around the reinforcing bar ends (1, 11) projecting into each end of the sleeve and to bite and grip the bar ends to prevent withdrawal as claimed. Schade et al. does not expressly disclose a reinforcing bar connection wherein the flexible metal ring washers each further includes spring fingers having a generally channel-shape cross-section formations to provide a flexible inner edge for biting and gripping the rod. Dobell teaches a reinforced bar end connector for use in a reinforced concrete construction (Figs. 4-5 as illustrated

Art Unit: 3637

bellow) having a sleeve (30) within which a plurality of spring finger washers (37) having a generally channel-shape cross-section are mounted therein, the spring finger washers each having a flexible inner edge with fingers (37) to expand around the reinforcing bar (17) end to bite into and grip the bar end to prevent withdrawal after the bar end has been inserted into the sleeve in the final assembled configuration (Dobell: col. 6, lines 45-75). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the spring finger washers taught by Dobell, modifying the metal ring washers of the reinforcing bar connection of Schade et al., thus allowing biting and gripping the reinforced bar while maintaining sufficient resiliency so as to distribute the load between the plurality of washers (see Schade et al. col. 4, lines 53-59). Further regarding claim 13, Schade et al. further discloses four washers mounted in relation to bar end (1) and three washers mounted in relation to bar end (11). Dobell teaches approximately twenty spring fingered washers (37) related to bar end (17). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ any numbers of spring fingered washers mounted within the sleeve of Schade et al. combined with Dobell in corresponding as depend upon the mechanical properties of the reinforcing bar connection such as the length of the sleeve and the size of the rods to be secured, thus preventing withdrawal of the reinforcing bar ends based on design choice and engineering design concerns.



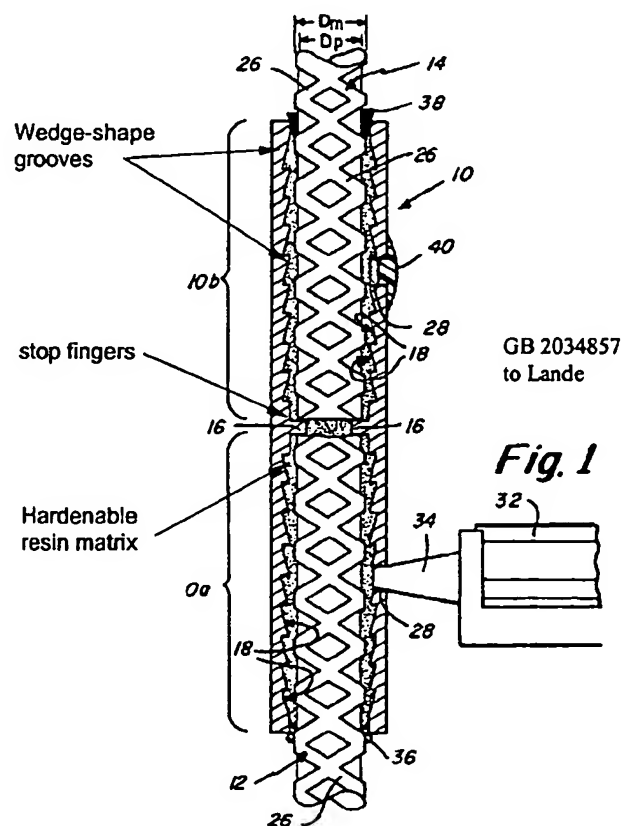
2. Claims 4-5,9-12, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over DD 222374 to Schade et al. and Dobell '658 as applied to claims 1-3 above, and further in view of GB 2034857 to Lande.

Schade et al. and Dobell disclose a reinforcing bar connection having all of the elements stated previously. Schade et al. further discloses a reinforcing bar connection wherein the outside of each of the flexible metal spring washers is mounted in grooves formed in a sleeve (5) (see Fig. 2). Dobell further teaches openings formed between the fingers at the flexible inner edge in the spring finger washers (see Fig. 4). Schade et al. and Dobell do not expressly disclose a reinforcing bar connection including a hardenable matrix filling the sleeve after the bar is inserted; wherein the hardenable matrix is a resin or grout; including at least one wedge-shaped groove in the interior of the sleeve at an end or each end thereof forming a shoulder facing the end; and wherein the wedge surface of the wedge-shape groove tapers to a smaller diameter toward the end of the sleeve and the shoulder is formed at the larger diameter. GB 2034857 to Lande teaches a reinforcing bar connection (see Fig. 1-16, as illustrated in the final office letter mailed 12/22/2003, page 5) for connecting two reinforcing bars, the connection comprising a sleeve (10) having a plurality of wedge-shaped grooves and shoulders (18, 20, 22) at each end of the sleeve; wherein the wedge surface of the wedge-shape grooves tapers to a smaller diameter toward the end of the sleeve and the shoulder is formed at the larger diameter; wherein a hardenable

2. Claims 4-5,9-12, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over DD 222374 to Schade et al. and Dobell '658 as applied to claims 1-3 above, and further in view of GB 2034857 to Lande.

Schade et al. and Dobell disclose a reinforcing bar connection having all of the elements stated previously. Schade et al. further discloses a reinforcing bar connection wherein the outside of each of the flexible metal spring washers is mounted in grooves formed in a sleeve (5) (see Fig. 2). Dobell further teaches openings formed between the fingers at the flexible inner edge in the spring finger washers (see Fig. 4). Schade et al. and Dobell do not expressly disclose a reinforcing bar connection including a hardenable matrix filling the sleeve after the bar is inserted; wherein the hardenable matrix is a resin or grout; including at least one wedge-shaped groove in the interior of the sleeve at an end or each end thereof forming a shoulder facing the end; and wherein the wedge surface of the wedge-shape groove tapers to a smaller diameter toward the end of the sleeve and the shoulder is formed at the larger diameter. GB 2034857 to Lande teaches a reinforcing bar connection (see Fig. 1-16, as illustrated bellow) for connecting two reinforcing bars, the connection comprising a sleeve (10) having a plurality of wedge-shaped grooves and shoulders (18, 20, 22) at each end of the sleeve; wherein the wedge surface of the wedge-shape grooves tapers to a smaller diameter toward the end of the sleeve and the shoulder is formed at the larger diameter; wherein a hardenable matrix of resin fills the sleeve after the bars is inserted (GB 2034857 to Lande: page 2, lines 88-92). It would have been obvious to

one having ordinary skill in the art at the time the invention was made to employ at least one or a plurality of wedge-shaped grooves in the interior of the sleeve of a reinforcing bar connection of Schade et al. combined of Dobell and a hardenable matrix of resin filling the sleeve, as taught by GB 2034857 to Lande, thus having resin pass through the openings of the spring finger washers as well as cooperating with the wedge-shaped grooves and shoulders to fill the area between the sleeve and the bars in a manner which significantly increases the tensile strength of the joint (GB 2034857 to Lande: page 3, lines 1-10).



Art Unit: 3637

3. Claims 6-8, 11, 12 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DD 222374 to Schade et al., Dobell and GB 2034857 to Lande, as applied to claims 1 and 4 above, and further in view of GB 2192210 to Kadota.

Schade et al., Dobell and Lande disclose a reinforcing bar connection having all of the elements stated previously. GB 2034857 to Lande further discloses stop fingers (16) having a smaller center hole mounted in the sleeve to limit the extent of insertion of the bar ends inserted into the sleeve. DD 222374 to Schade et al., Dobell and GB 2034857 to Lande do not expressly disclose a reinforcing bar connection wherein the hardenable matrix is a grout; including a stop-washer inserted in the sleeve to limit the extent of insertion of the bar ends inserted into the sleeve; wherein the stop-washer includes a central hole having a diameter less than that of the bar ends. GB 2192210 to Kadota teaches a reinforcing bar connection (Figs. 1-4) wherein a hardenable matrix of pout (34) (GB 2192210 to Kadota: page 2, line 127) is filled within a sleeve (10) acting in conjunction with a washer (15) having a central hole (Fig. 3) with a diameter less than that of the bar ends. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a hardenable matrix of pout, and to modify the stop-fingers to a stop-washer, as taught by GB 2192210 to Kadota, modifying the reinforcing bar connection disclosed by Schade et al., Dobell and GB 2034857 to Lande, thus providing a very secure and rigid bond an interaction between the grout, the reinforcing bars and the sleeve (GB 2192210 to Kadota: page 2, lines 1 17-128). Furthermore, It would have been an obvious matter of design choice to employ any type or shape of stopper means to limit the extent of the bar ends inserted

Art Unit: 3637

into the sleeve, since applicant has not disclosed that a stopper having a circular shape solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any type of stopper means provided the hardenable matrix is allowed to flow in and around the junction point of the two bar ends within the sleeve. Additionally, forming the various elements of the reinforcing bar end connection with integral or separable components is considered well within the ordinary skill of one in the art. Lastly, regarding the method claims of 20-22, GB 2034857 to Lande teaches the step of providing a plurality of wedge shaped grooves and shoulders in each end of the sleeve and the introduction of a hardenable matrix within the sleeve; Dobell teaches the insertion of spring fingered washers inserted in an end of a sleeve; DD 222374 to Schade et al. also teach the insertion of a plurality of flexible ring washers oppositely arranged in the sleeve to grip the bar ends and prevent withdrawal. It would have been obvious to one of ordinary skill in the art to employ the method steps recited in claims 20- 22, utilizing the teachings of Schade et al., Dobell and GB 2034857 to Lande to form a reinforced bar end connection with all of the recited elements.

(11) Response to Argument

In response to appellant's argument of Issue One that the combination of the Schade and Dobell references is not obvious, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of

the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Specifically, Appellant argues that the reinforcement bar connector disclosed by Schade is not applicable, alone or in combination with the Dobell reference. The Examiner respectfully disagrees. In this case, first, in the structural claim 1, Appellant broadly claims, in part, "a sleeve", "spring finger washers mounted in said sleeve" and additional aspects of the spring finger washers. Wherein, the reinforcing bars are not positively claimed in the structural claims 1-13 and 26. Dobell teaches a reinforcing bar connection having metal washers with flexible fingers and channel-shaped cross-section formations disposed inside of the sleeve to expand around and grip a reinforce bar end (19) for preventing the reinforcing bar withdrawal from the sleeve. Therefore, Schade et al. and Dobell both teach a same field of using a connector for connecting a reinforcing bar in a concrete construction. Second, the Dobell reference is only used as references to teach the "spring finger washers" having all of the recited limitations of the "spring finger washers" including the flexible inner edge" and "openings" to allow biting and gripping the reinforcing bar in a connector and to allow hardenable matrix filling the sleeve as claimed invention. The Dobell reference is clearly to be a connector to connect a reinforcing bar and is used in concrete structures, thus entirely applicable in combination with the Schade reference. The Examiner respectfully disagrees with Appellant's argument that the "crimping" or "pressing" of the sleeve to would destroy the integrity and structure of the pronged plates (the spring washer). In the structural claims 1-13 and 26, Appellant only claims a connection, and the reinforcing bars are not

positively claimed. Therefore, one of ordinary skill in the art would be able to fashion the reinforcement bar connection to maintain the integrity of the spring finger washers, and as such, meets the obviousness applied to method claims 20-22 to provide the product as claims 1-13 and 26. Whether the finger washers are mounted in the sleeve before the bar is pushed into the sleeve or are mounted to the bar before the bar is inserted into the sleeve merely recites an obvious steps of method and does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Further, as regard to claim 3, Dobell teaches the pronged plate (35) having fingers (37) rounded a central hole and separated by openings to allow a bar (17) to be inserted. Therefore, it is examiner's position to broadly interpret that the fingers of the pronged plate (35) of Dobell's connector are broadly considered to have "channel-shape cross-section formations" as claimed.

In response to appellant's argument of Issues Two and Three that the combination of the Schade and Lande or Kadota references is not obvious, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Specifically, Appellant argues that the reinforcing bar connection disclosed by Schade is not applicable, alone or in combination with the Lande 's reference. The Examiner

respectfully disagrees. Schade teaches the reinforcing bar connector having rings mounted between the sleeve and the reinforcing bars (1, 11) which inherently provide a gap between the reinforcing bar and the sleeve (whether the part of 42 or the part of 41 combined with the sleeve 5 which is used to reducing size of part 41). However, Dobell teaches the spring washers (35) that gripping a reinforcing bar providing openings therebetween. It would have been obvious to one ordinary skill in the art to modify the connection of Schade with spring washers having structural limitations as claimed as taught by Dobell as we discussed set forth above, and such spring washers would allow to fill a hardenable matrix of resin or grout into the gap between the washer, the reinforcing bar, and the sleeve as taught by Lande and Kadota. Notice, in response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is submitted, that the references taken together are clearly suggestive of the claimed invention for the reasons ably set forth above. This is all that is required to support a prima facie legal conclusion that the claimed invention would have been obvious to one of ordinary skill in the art. In re McLaughlin, *supra*.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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Art Unit 3637

August 18, 2004

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